UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,961	07/07/2003	Soo-Ching Ng	4413-0114P	4747

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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER
RUTZ, JARED IAN

ART UNIT	PAPER NUMBER
2187	

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/612,961	NG ET AL.
	Examiner	Art Unit	
	Jared I. Rutz	2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _7/7/2003_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-6_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-6_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _07 July 2003_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claims 1-6 as originally filed on 7/7/2003 are pending in the instant application. Of these there is 1 independent claim and 5 dependent claims.

Drawings

1.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the structures claimed in claims 1-6 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next

Office action. The objection to the drawings will not be held in abeyance.

Specification

1.   The disclosure is objected to because of the following informalities: The

disclosure is replete with awkward phrasing which makes the meaning difficult to

discern. Two examples follow.

     a.   "Furthermore, the double tracks and the interleaving method of the

present invention can also be suitable [sic] applied in any hosting device such as

a portable ROM, a card reader in USB1.1 series and a portable ROM, a card

reader in USB2.0 series, or an IDE/PCMCIA interface." (paragraph 0073) The

examiner is unsure why a portable ROM appears twice, and also of the

significance of the use of the word "or" in only two of the listed elements.

     b.   "The controller defines the physical block that corresponds to the logical

block as the mother block, then unify the mother block with the corresponding

logical block wherein the back up logical zone, if the host is going to write to page

N, the controller will move from block 0 to block N-1 from the mother block to the

child block; then begins to write from block N of the child block." (paragraph

0015) The examiner is uncertain of the meaning of "then unify the mother block

with the corresponding logical block wherein the back up logical zone", and also

why N is referred to as both a page and a block.

2.   The specification has not been checked to the extent necessary to determine the presence of all possible errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

3.   A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

Claim Objections

4.   **Claims 1-6** are objected to for being in improper format. Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

5.   **Claim 6** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 6 recites that the method of claim 1 "can be suitably applied in any host" and the example "an IDE/PCMCIA interface." Claim 1 is limited to a plurality of USB tracks. The limitation "an IDE/PCMCIA interface" does not further limit claim 1, but rather broadens the scope of the claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 112

6.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7.   **Claim 1** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 states "a plurality of independent USB ports for transferring sets of data from and within said flash memory cells". It is not known to one of ordinary skill in the art, nor reasonably taught by the specification how USB ports are used to transfer data <u>within</u> a flash memory cell, which implies some sort of relocation technique internal to the flash memory cell. For the purpose of this examination, the examiner will interpret the limitation "a plurality of independent USB ports for transferring sets of data from and within said flash memory cells" as "a plurality of independent USB ports for transferring sets of data from and between said flash memory cells".

8.   **Claim 4** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 4 combines the access and data management method of claim 2 with a mother and child concept for processing sets of data. While explicitly recited in the instant specification, it remains unclear what the limitation means.

9.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10.   **Claims 1-6** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11.   **Claim 1** seems to be directed to a method according to the preamble, however the body of the claim seems to focus on the apparatus for performing the method and functional limitations thereof. As such the metes and bounds of the claim are indefinite. See Ex parte Lyell, 17 USPQ2d 1548.

12.   **Claim 2** combines the access and data management method of claim 1 with an interleaving method, however no method steps are recited.

13.   **Claim 3** is directed to the access method of claim 2, however claim 2 is directed to an access and data management method. Accordingly, it is unclear if claim 3 is intended to inherit all the limitations of claims 1 and 2, as the preamble is not directed to the same invention. Additionally, although claim 3 is directed to a method it contains no method steps. It states functional limitations of hardware components, "wherein said interleaving method allows reading/writing" and "said flash memory cells can transport data through said plurality of independent data USB". Additionally, allowing a second set of data to be read/written to the flash memory independent of reading/writing a first set of data into the flash memory is not an interleaving method per se.

14.   **Claim 3** recites the limitation "said plurality of independent data USB" in line 5.

There is insufficient antecedent basis for this limitation in the claim. Claim 1 refers to a

plurality of independent USB ports, which are the interfaces used to connect to a USB

bus, while said limitation appears to refer to a plurality of USB busses.

15.   **Claim 4** is directed to the access and data management method of claim 2,

however no method steps are recited.

16.   **Claim 5** combines the access and data management method of claim 2 with a

copy back command, however no method steps are recited.

17.   **Claim 6** is directed to the method of claim 1, however it does not contain any

method steps. Additionally, the limitation "wherein the host comprising a portable ROM,

a card reader in USB 1.1 series or a portable ROM, a card reader in USB2.0 series or

an IDE/PCMCIA interface." is not clear. The examiner is unsure why a portable ROM

appears twice, and also of the significance of the use of the word "or" in only two of the

listed elements.

18.   A broad range or limitation together with a narrow range or limitation that falls

within the broad range or limitation (in the same claim) is considered indefinite, since

the resulting claim does not clearly set forth the metes and bounds of the patent

protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board

of Patent Appeals and Interferences in Ex parte Wu, 10 USPQ2d 2031, 2033 (Bd. Pat.

App. & Inter. 1989), as to where broad language is followed by "such as" and then

narrow language. The Board stated that this can render a claim indefinite by raising a

question or doubt as to whether the feature introduced by such language is (a) merely

exemplary of the remainder of the claim, and therefore not required, or (b) a required

feature of the claims. Note also, for example, the decisions of Ex parte Steigewald, 131

USPQ 74 (Bd. App. 1961); Ex parte Hall, 83 USPQ 38 (Bd. App. 1948); and Ex parte

Hasche, 86 USPQ 481 (Bd. App. 1949). In the present instance, **claim 6** recites the

broad recitation "can be suitably applied in any host", and the claim also recites

"wherein the host comprising a portable ROM, a card reader in USB1.1 series or a

portable ROM, a card reader in USB2.0 series or an IDE/PCMCIA interface" which is

the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 103

19.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

20.   **Claims 1-4 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Heiberger et al (US 5,341,489) in view of Pua (US 2002/0147882) further in view of

Avraham (US 2003/0145153).

21.   **Claim 1** is taught by Heiberger as:

c.   An access and data management method using parallel tracks comprising

a plurality of flash memory cells. See column 3 lines 60-64.

d.   Wherein when a target set of data is a plurality of sectors, then a controller

uses a plurality of pages as a single unit to process reading and writing so that a

plurality of pages can be read and written into said flash memory cells

simultaneously at each time. See column 2 lines 9-20, which show that multiple

writes are performed, a second is begun while a first is pending.

22.   Although Heiberger discloses a flash based memory control method as described

supra, Heiberger does not disclose plurality of independent USB ports for transferring

sets of data from and within said flash memory cells.

23.   **Claim 1** is taught by Pua as:

e.   A plurality of independent USB ports for transferring sets of data from and

within said flash memory cells. See paragraph 0011 lines 3-4, which show that a

USB connector (port) connects the flash memory storage device with a USB

host. Although Pua does not disclose a plurality of USB ports, the duplication of

ports has no patentable significance unless a new and unexpected result is

produced.

> i.   *MPEP § 2144.04 VI B. Duplication of Parts: In re Harza, 274 F.2d*
> *669, 124 USPQ 378 (CCPA 1960) (Claims at issue were directed to a*
> *water-tight masonry structure wherein a water seal of flexible material fills*
> *the joints which form between adjacent pours of concrete. The claimed*
> *water seal has a "web" which lies ** in the joint, and a plurality of "ribs" ***
> *>projecting outwardly from each side of the web into one of the adjacent*
> *concrete slabs. <The prior art disclosed a flexible water stop for preventing*
> *passage of water between masses of concrete in the shape of a plus sign*
> *(+). Although the reference did not disclose a plurality of ribs, the court*
> *held that mere duplication of parts has no patentable significance unless a*
> *new and unexpected result is produced.).*

24.   Heiberger and Pua are analogous art because they are from the same field of

endeavor, namely the design of portable flash memory based storage devices.

25.   At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a USB port as the connection between the memory card and the host system.

26.   The motivation for doing so would have been first, USB is a standard serial interface that allows data to be stored in and read from an external memory (Pua paragraph 0010 lines 1-3, and second, designing the flash memory device with a USB interface allows the host to easily interact with the flash memory device (Pua paragraph 0010 lines 6-9).

27.   Therefore it would have been obvious to combine Pua with Heiberger for the purposes of allowing the host to easily interact with the flash memory device and using a standard serial interface that allows data to be stored in and read from an external memory to obtain the invention as specified in **claims 1-4 and 6**.

28.   Heiberger and Pua do not disclose the use of multiple USB ports.

29.   Avraham discloses a flash memory storage device (paragraph 0013 lines 1-5) having multiple ports for accessing data.

30.   Although Avraham does not expressly disclose the use of USB ports, as shown supra USB is a standard serial interface that allows data to be stored in and read from an external memory (Pua paragraph 0010 lines 1-3, and designing the flash memory device with a USB interface allows the host to easily interact with the flash memory device (Pua paragraph 0010 lines 6-9).

31.   Heiberger, Pua, and Avraham are analogous art because they are from the same field of endeavor, designing flash memory devices.

32.   At the time of the invention it would have been obvious to one of ordinary skill in

the art to use multiple access ports as taught by Avraham in the flash memory device of

Heiberger and Pua.

33.   The motivation for using multiple ports as taught by Avraham would have been to

enable data to be continuously read from the flash storage device without requiring the

logic processor to operate continuously and to enable data to be read from the flash

without interruption when data is written to the flash (Avraham paragraph 0004).

34.   Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention having the teachings of Heiberger, Pua and Avraham to use

multiple access ports as taught by Avraham in the flash memory device of Heiberger

and Pua for the benefit of enabling data to be continuously read from the flash storage

device without requiring the logic processor to operate continuously and of enabling

data to be read from the flash without interruption when data is written to the flash to

obtain the invention as specified in **claims 1-4 and 6**.

35.   **Claim 2** is taught by Heiberger as:

  f.   The access and data management method according to claim 1, wherein

  further combining with an interleaving method including two or more flash

  memory cells. See column 2 lines 9-20.

36.   **Claim 3** is taught by Heiberger as:

  g.   The access method according to claim 2, wherein said interleaving

  method allows reading/writing a second set of data into the flash memory cells

  independent of reading/writing of a first set of data into the flash memory cells

through the plurality of USB ports and therefore reduces a waiting time for

reading/writing, and said flash memory cells can transport data through said

plurality of independent data USB. See column 2 lines 9-20.

37.   **Claim 4** is taught by Pua as:

h.   The access and data management method according to claim 2, wherein

further combining with a mother and child concept for processing sets of data, so

that the controller need not repeat transferring or erasing actions into said flash

memory cells while writing said sets of data, and therefore the life of said flash

memory cell can be extended, and also an operating speed of writing into said

flash memory cell can be increased. See paragraphs 0033 – 0039, which show

the use of the mother and child structure. Specifically note paragraph 0033,

which shows that the mother and child blocks are given the same logical

address.

38.   **Claim 6** is taught by Heiberger as:

i.   The access and data management method according to claim 1, wherein

the method of using the parallel tracks of flash memory cells can be suitably

applied in any host, wherein the host comprising a portable ROM, a card reader

in USB 1.1 series or a portable ROM, a card reader in USB2.0 series or an

IDE/PCMCIA interface. See column 3 lines 50-56, which show that the

interleaving system is used in a memory card, and column 3 lines 65-86 which

show that the card is removable.

39.   **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Heiberger in view of Pua further in view of Avraham and further in view of Applicant's admitted prior art.

40.   Heiberger, Pua and Avraham disclose a memory interleaving method as shown supra with respect to claims 1 and 2.

41.   Heiberger, Pua and Avraham do not disclose expressly further combining with a copy back command to put data into a buffer temporarily for reducing the chances of waiting and thereby further reducing the time for transferring the sets of data.

42.   The copy back command is identified as being known in the art in paragraph 0005 of the applicant's specification. As stated in paragraph 0005 of the instant application, the use of memory cells incorporating a copy back command is beneficial as it allows an increased operation speed compared to conventional reading and writing.

43.   As the invention disclosed by Heiberger, Pua and Avraham deals with reading from and writing to flash memory, it would be obvious to one skilled in the art to use flash memory that implements the copy back command to implement the access and data management method disclosed by Heiberger, Pua and Avraham. This would allow a more efficient use of the memory cells.

44.   Therefore, it would have been obvious to combine the Applicant's admitted prior art with the access and data management method disclosed by Heiberger, Pua and Avraham for the benefit of allowing more efficient use of the memory to obtain the invention as specified in **claim 5**.
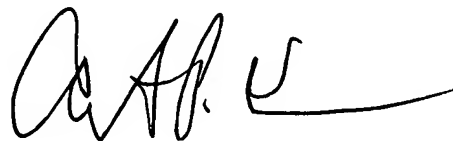
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared I. Rutz whose telephone number is (571) 272-5535. The examiner can normally be reached on M-F 8:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jared I Rutz
Examiner
Art Unit 2187

jir JIR

CHRISTIAN CHACE
PRIMARY EXAMINER